



CIP Forum
June 22, 2009

A/C Quality Installation
Joe Plummer, OES

Welcome



- **Thank you for coming**
- **First in a series of CIP forums**
 - **Unique programs**
 - **New technologies**
 - **M&V**
 - **Other topics?**
- **Next forum – July 21**
 - **Behavioral programs**

Agenda for Today



- **Overview of quality installation programs (Plummer-OES)**
- **GRE's Experience (Tom Sagstetter)**
- **Xcel's Experience (Jean Hammer)**
- **Minnesota Power's Experience (George Agristi)**
- **Q/A**
- **Statewide Certified Contractor Pool**

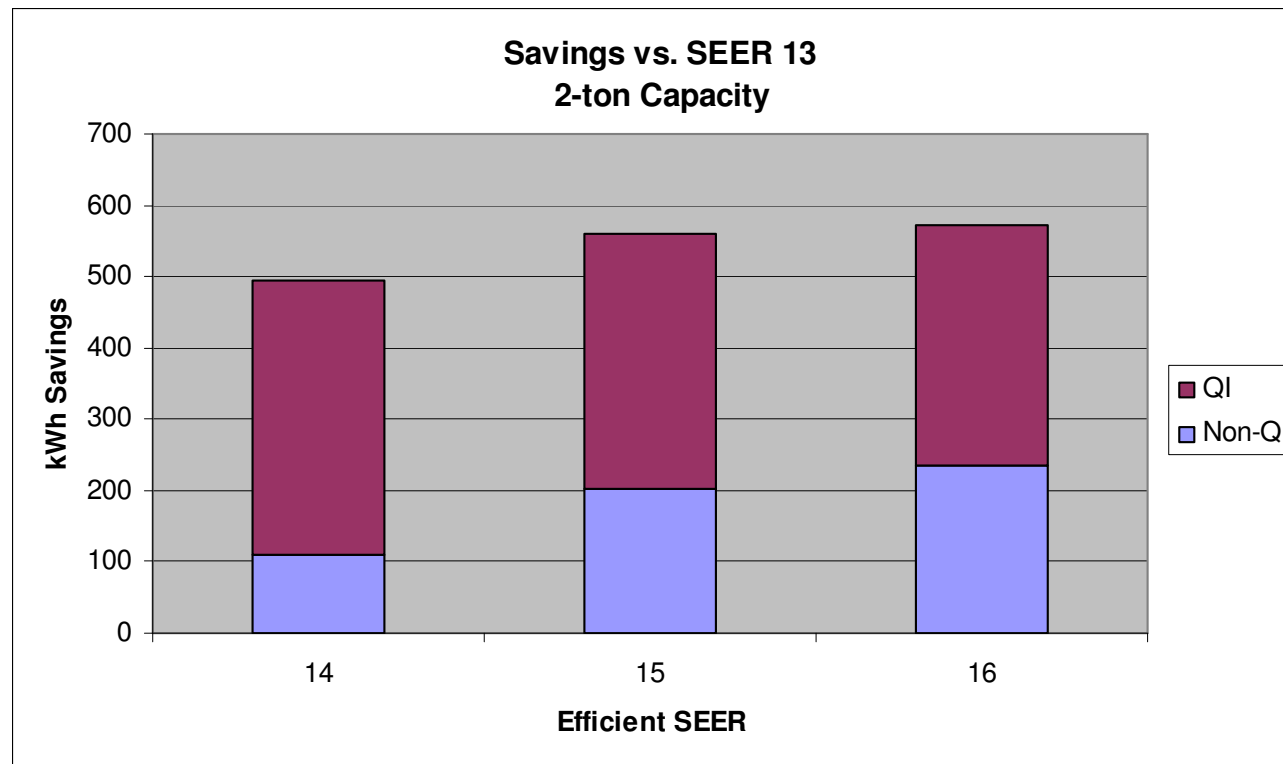
Residential Trends



- **Higher federal standards for A/C**
 - Minimum SEER-13
 - Diminished savings
- **Higher lighting standards**
 - New standards to be phased in beginning 2012
 - Impact on CFL programs
- **Higher appliance standards**
 - Diminished savings from ENERGY STAR programs

Good for society, bad for utility programs

A/C Savings



Source: Deemed Savings Database

Benefits of Performance Based Programs



- **More energy savings**
- **Greater peak demand savings**
- **Non-energy benefits**
 - **Improved comfort**
 - **Reduced maintenance \$**
 - **Longer equipment life**
- **Build customer relations**

Importance of QI



- **A/C performance is highly dependent on installation**
 - Up to 35% more energy use if installed improperly
- **Cooling is largest electric load in home**
- **Large percentage of MN homes with CAC**
 - Almost all new homes
 - About 90% of existing homes with forced air systems
- **Before QI programs, installation problems were rampant**
 - Based on studies by ACEEE, Energy Center of Wisconsin, others

Common Installation Problems



- **Oversizing**
 - Frequent cycling leads to inefficient operation
- **Mischarging**
 - Significant drop in efficiency with under- or over-charge
- **Inadequate Airflow Over Indoor Coil**
 - Too low -> greater condensation -> less sensible cooling (most common)
 - Too high -> too little condensation
- **Duct Leakage**
 - Impacts system efficiency

Up to 35% more electricity use (EPA, 2004)

Solution: Performance Based Installation Program



- **Essential elements:**
 - **Trained contractors**
 - **List of eligible equipment**
 - **Quality assurance provisions**
- **Combo rebate with furnace ECM motors**
 - **Capture additional savings during cooling season**

Minnesota programs



- **Xcel/GRE**
 - **HVACReduction.net**
- **Minnesota Power**

Resources



- **ACCA Quality Installation Spec**
- **ENERGY STAR Quality Installation Program Template**
- **HVACReduction.net**
- **NATE certification**



Thank you!

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